State of Rhode Island
Department of Environmental Management

# Policy Memo on MTBE and Reformulated Gasoline

*February 2002*

The Federal Reformulated Gasoline Program (RFG) established in the Clean Air Act Amendments of 1990, and implemented in 1995, has provided substantial reductions in the emissions of a number of air pollutants from motor vehicles. The amendments, and subsequent regulations, defined a cleaner gasoline in terms of air quality and required nine (9) areas around the country to use reformulated gasoline (including metropolitan Hartford, New York City and Philadelphia). Rhode Island and other states in the Northeast and around the country "opted-in" to the program as provided in the legislation.

The use of reformulated gasoline has proven to be an important air quality strategy. Reformulated gasoline has significantly reduced the exhaust and evaporative emissions of ozone precursor pollutants, carbon monoxide, and hazardous air pollutants. The number and intensity of violations of the ozone standard has decreased in recent years, due in part to the use of reformulated gasoline. The ambient concentration of hazardous air pollutants, including benzene, a constituent of gasoline and one of the most carcinogenic substances known, was significantly reduced after introduction of reformulated gasoline in 1995.

Importantly, the 1990 Clean Air Act amendments require that reformulated gasoline contain at least 2% oxygen by weight (oxygen helps gasoline burn more completely, therefore reducing harmful tailpipe emissions). Refiners have chosen to meet that requirement in the Northeast and most of the country by adding methyl tertiary-butyl ether (MTBE) to gasoline. MTBE was added to gasoline to increase octane before reformulated gasoline required it, but at lower volumes. Ethanol is the oxygenate of choice in the Midwest, near the source of the corn used in its production. Over 85% of all reformulated gasoline used in the U.S. contains the oxygenate MTBE.

MTBE has physical properties that cause it to move rapidly through groundwater and remain in groundwater if even small quantities of gasoline containing MTBE are spilled. Groundwater contaminated with very low levels of MTBE can render the water undrinkable due to adverse taste and odor. There is also concern about possible acute and chronic health effects from MTBE contaminated water. In Rhode Island, MTBE has contaminated the public drinking water well that serves Pascoag, and has been found in a number of individual drinking water wells. Maine, New Hampshire and Connecticut have

conducted surveys of private drinking water wells and found rather wide spread MTBE contamination in their states.

As a result of the growing concern about MTBE, a consensus has developed that MTBE use in reformulated gasoline should be curtailed. A task force of Northeast states was formed in early 1999 to addresses this issue. The Task Force developed the following principles for changes to the Reformulated Gasoline Program:

- Repeal the 2% oxygen mandate.
- Phase-down and cap MTBE in all gasoline.
- Clarify state authority to regulate gasoline additives.
- Maintain the toxic emission reduction benefits of reformulated gasoline.
- Promote consistency in fuel specifications.
- Provide ample lead-time to ensure adequate fuel supply and price stability.

Although groundwater contamination from gasoline with MTBE is recognized as a national issue, a federal legislative solution has not materialized to date. State and federal government, the oil industry and the ethanol industry are major stakeholders involved with federal legislation. Meanwhile states are taking action. New York, Connecticut and California have passed legislation banning the use of MTBE in gasoline beginning in 2003. Maine dropped out of the federal reformulated gasoline program and New Hampshire has petitioned to do so effective in 2004.

The only viable alternative to MTBE if the oxygenate mandate remains in place is ethanol. Ethanol is a renewable fuel because it is made from corn or other biomass, but it increases evaporative emissions from gasoline and it needs a separate transportation infrastructure. Because of the uncertainty of widespread introduction of ethanol, the New England environmental commissioners asked the regional water and air organizations, the New England Interstate Water Pollution Control Commission (NEIWPCC) and the Northeast States Coordinated for Air Use Management (NESCAUM), to study the potential public health, environmental, regulatory and economic impacts associated with a shift to ethanol. Some of the major findings are:

- Exposure to ethanol in air and contaminated drinking water is not expected to pose a public health risk. However, air toxics (e.g. benzene) and ozone precursor emissions could increase with widespread ethanol use. Additional analyses are needed to assess the potential health impacts associated with increased ethanol use.
- Ethanol poses significantly less risk to water resources than MTBE. But again, more analyses are needed to fully understand potential impacts.
- Air toxic and ozone precursor emissions from gasoline could increase in the absence of legislative and regulatory actions that would, among other things, allow refiners and suppliers to meet ethanol quotas nationally on an annual average basis. (As opposed to the current system, where every gallon of reformulated gasoline must contain a minimum oxygen content.)
- Establishing an infrastructure to handle ethanol could cost the Northeast upwards of $30 million and take two (2) or more years to complete.

- Conservative estimates suggest producing reformulated gasoline with ethanol in the Northeast will increase the cost of gasoline 3 – 11 cents per gallon.

The study recommends more research and investigation into the health effects, environmental impacts and economic impacts of additional ethanol use. The study makes recommendations regarding the integrity of underground storage tank systems and suggests Northeast states explore in-region ethanol production from biomass feedstock.

The major recommendation from the regional study regarding legislative and regulatory issues is that Northeast states should continue to aggressively pursue congressional action to lift the oxygen mandate, to regionally coordinate the phase-out of MTBE and to address the health and environmental concerns about widespread ethanol use.

As of the date of this memo, Congress is considering legislation that would meet the principles listed above. *The Energy Policy Act of 2002* (S. 1766, sponsored by Senator Tom Daschle) would, among other things, ban the use of MTBE in four (4) years, allow Governors to waive the oxygen mandate and preserve the air quality benefits of reformulated gasoline. Through numerous avenues, the State of Rhode Island is currently supporting S.1766.